ΔU is to be changed, the change is communicated to the sensor unit 10 by changing the load between the sensor unit 10 and the analytical unit 40. This load change is produced in the analytical unit 40, and therefore is generated outside the sensor unit 10. One example is the load which results from a variable load current at essentially constant voltage. This current is identified by the reference symbol I_{load}.

For example, if, during normal operation, an average load current I_0 flows in the signal load path, a change of the output load with the load current I_1, which is greater than the average load current I_0 in normal operation, can communicate to the sensor unit 10 that the correction quantity ΔU should be increased. For example, if the load current is changed to a value $I_2 > I_1 > I_0$, a reduction of the correction quantity ΔU can also be transmitted. The change of the load current from I_0 to I_1 or I_2 can be continuous or can occur at a certain frequency.

The sensor unit 10 has a circuit arrangement which can detect the change of the load current I_{load} from I_0 to I_1 or I_2, and can then correspondingly vary the correction quantity ΔU.

In this connection, it should be noted that the time which the sensor unit 10 takes to reliably detect the change wish is known to the analytical unit 40, so that the changed load I_{load} is also maintained for a sufficiently long time. The signal processing unit and the sensor unit 10 thereupon change the value of the correction quantity ΔU in appropriate fashion. Feedback to the analytical unit 40 is not necessary. In this way, it is possible that the analytical unit initially continues to operate with the changed load current I_2 or I_1, or - which generally makes more sense - operates with the lowest load current I_0. The analytical unit 40 will now analyze further whether the change was sufficient. If another change should be required, the analytical unit 40 again requests this change. A change preferably is effected with the smallest possible increment.

Of course, other possible ways of transmitting a changed parameter set c_1, c_2... are conceivable. However, it is always presupposed that the nominal operation of providing sensor data will not be disturbed.

The invention specifies that this supply voltage U_B of the sensor unit 10 and/or of the sensor-signal processing unit 25 can be modulated. Through this modulation, the sensor unit 10 recognizes which parameter c_i must be changed, in what way, and by what amount. In the simplest case, the same parameter is always involved, and it is raised or lowered preferably by the smallest possible steps.

This leads to a large number of possible applications. Quite generally suited for this are programmable systems, in which an analytical unit 40 analyzes a sensor signal and possibly other signals. The sensor unit 10 must be freely programmable as regards one or more parameters c_i. An example of such systems is the sensing of magnetic field signals, for example to detect and regulate the angular position of the crankshaft, the camshaft, or the anti-blocking system of a motor vehicle.

Although the present invention has been discussed in the context of a sensor element that provides a voltage signal whose magnitude is indicative of the sensed physical measurement, one of ordinary skill will recognize that the present invention is of course not so limited. For example, the present invention is also applicable as a sensor that provides current signals, and/or frequency signals.

Although the present invention has been shown and described with respect to several preferred embodiments thereof, various changes, omissions and additions to the form and detail thereof, may be made therein, without departing from the spirit and scope of the invention.

What is claimed is: